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Occurrence of Dog Bites and Rabies within Humans in Srinagar, Kashmir

Namera Thahaby, Afzal Hoque Akand, Abdul Hai Bhat, Shabeer Ahmed Hamdani and Mudasir Ali Rather

Abstract

Open garbage dumps and dog bite are public health impasse in the Kashmir region. In Srinagar city, there are more than 91,000 dogs. It's making one dog for every 12 citizens. Conversely, there are more than 80,000 dog bites, are reported in the valley. The present study was conceded in Srinagar district. It is solidly colonized with stray dog population perhaps due to mismanagement of garbage. The mounting street dog population is leading increasing fright in the city. The information recorded for Dog bite cases was collected from SMHS. The mainstream victims were males. The majority were bitten in the age group of 30–40. The majority had reported at the same day to the hospital. The time of exposure was evening. The bulk had bites on legs. Category 3 bites were seen with the majority people. The majority receive immunoglobins. Open garbage dumps are a public health impediment and they instigate to stray dogs propagation in Srinagar. Individual's information should be enhanced and their sanguine attitude might be translated into pertinent practices for preclusion of rabies.

Keywords: occurrence, rabies, dog bites, Srinagar, Kashmir

1. Introduction

Open garbage dumps and dog bite are public health impasse in the Kashmir region. In Srinagar city, there are more than 91,000 dogs [1]. It's making one dog for every 12 citizens. Conversely, there are more than 80,000 dog bites, are reported in the valley [2]. The solitary anti-Rabies clinic i.e. Shri Maharaja Hari Singh Hospital has finished its stock in fourfold in ten months [3]. The overwhelming majority of dog bite cases 9514 were from Srinagar [4]. The irresistible dog bite cases were 80% from urban spaces and 20% from the rural vicinity.

2. Research methodology

The present study was conceded in Srinagar district. It is solidly colonized with stray dog population perhaps due to mismanagement of garbage. The mounting street dog population is leading increasing fright in the city. The information recorded for Dog bite cases was collected from SMHS. The residences of the victims

Wards	North zone (9 wards)	South zone (9 wards)	East zone (8 wards)	West zone (8wards)
1	Tarbal, JamiaMasjid, Kawdara	Malroo, Lawaypora	Harwan, Nishat	SafaKadal, IddGah
2	Zadibal,Madeen Sahib	BeminaKhumaniChowk	Dalgate, Lalchowk	Palpora
3	Lal Bazaar, Umer Colony	AllochiBagh, MagermalBagh	Dud Dal, Locut dal	Nawab Bazaar, Ali Kadal
4	Hazratbal, Tailbal	Rajbagh, JawaharNagar, WazirBagh	JogiLankar, Zindashah Sahib	Syed Ali Akbar, Islam Yarbal
5	New Theed, Alusteng	Mahjoor Nagar, Natipora, Chanapora	Ganpatyar, Barbarshah	Shaheed Gung, Karan Nagar
6	Zakoora	BaghatBarzallua, Rawalpura	BanaMohalla,Chinkral Mohalla, S.R.Gung	Qamarwari, Chattabal
7	Ahmad Nagar	Humhama	Akil Mir Khanyar, Khaja Bazar	Bemina East, BeminaWest
8	Soura, Buchpora	PanthaChowk, Khanmoh	Hasna Abad, Makhdoom Sahib	Parimpura, Zainakote
9	Nowshahra, Zoonimar	S.D.colonyBatamaloo Nundrash colony		

Table 1.
Srinagar municipal corporation different zones with wards.

were collected. They were divided into zones as per Srinagar Municipal Corporation (**Table 1**). It was done to find out which zone is recording the highest number of cases.

3. Results

The **Table 2** exhibits the distribution of gender according to zones (**Figure 1**). In east zone, the overwhelming majority, 82.23% were males and the rest 17.76% were females. Likewise for west zone the majority, 71.90% were males, followed by 28.09% females. Similarly for north zone the majority, 75.94% were males and the rest % 27.05 was females. Statistically, there is a non-significant difference concerning gender for different zones. The **Table 3** shows the distribution of victim's age according to varied zones. In east zone the majority, 24.87% belonged to

Gender	Zones			
	East	West	North	South
Male	162 (82.23)	238 (71.90)	213 (72.94)	236 (73.06)
Female	35 (17.76)	93 (28.09)	79 (27.05)	87 (26.93)
Pooled	197	331	292	323

$$\chi^2 = 8.023, p = 0.045$$

*Figures in parenthesis indicate percentage.
indicates significant difference at 5% level of significance.

Table 2.
Distribution of victims according to gender with zones.

the age group of 30–40, followed by 19.28% in the age group of 20–30, 14.72% belonged to age group of 10–20, 12.89% belonged to age group of 40–50, 12.69% belonged to age group of 1–10, 9.64% belonged to age group of 50–60 and the

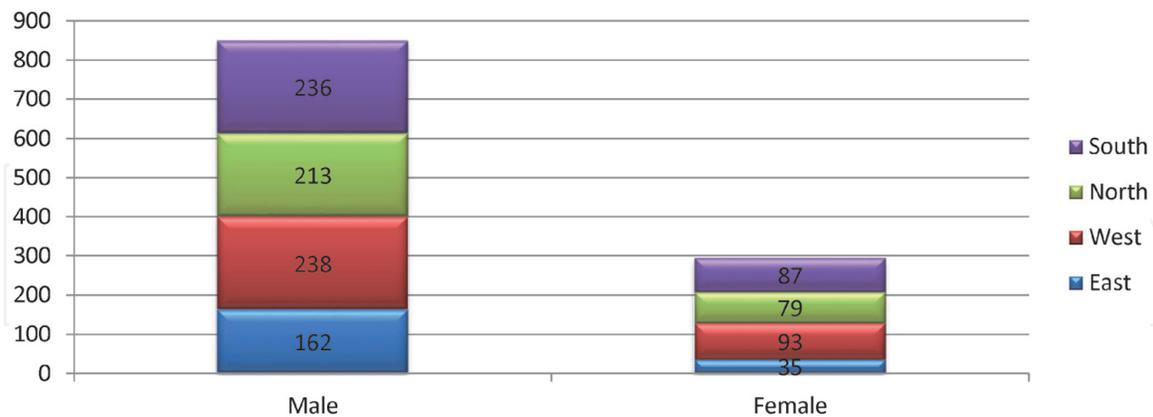


Figure 1.
 Gender of bite.

Age	zones			
	East	West	North	South
1–10	25 (12.69)	33 (9.96)	33 (11.30)	39 (12.07)
10–20	29 (14.72)	43 (12.29)	43 (14.72)	58 (17.95)
20–30	38 (19.28)	63 (19.03)	58 (19.86)	64 (19.81)
30–40	49 (24.87)	102 (30.81)	84 (28.76)	70 (21.69)
40–50	24 (12.18)	44 (13.29)	32 (10.95)	45 (13.93)
50–60	19 (9.64)	31 (9.36)	22 (7.53)	22 (6.81)
60 and above	13 (6.59)	15 (4.53)	20 (6.84)	25 (7.73)
Pooled	197	331	292	323
Mean ± SD	33.91 ± 17.49	47.28 ± 28.22	41.7 ± 22.6	46.14 ± 18.75

$\chi^2 = 15.726, p = 0.611$

Figures in parenthesis indicate percentage.
 * indicates significant difference at 5% level of significance.

Table 3.
 Distribution of victims according to age with zones.

Date of reporting	Zones			
	East	West	North	South
Same day	133 (67.51)	255 (77.03)	221 (75.68)	261 (80.80)
After one day or more	51 (25.88)	63 (19.03)	55 (18.83)	45 (13.93)
After a week	13 (6.59)	13 (3.92)	16 (5.47)	17 (5.26)
Pooled	197	331	292	323

$\chi^2 = 14.103, p = 0.028$

Figures in parenthesis indicate percentage.
 * indicates significant difference at 5% level of significance.

Table 4.
 Distribution of victims according to date of reporting with zones.

Time of exposure	Zones			
	East	West	North	South
Morning	58 (29.44)	86 (25.98)	63 (21.57)	55 (17.02)
Daytime	17 (8.62)	28 (8.45)	29 (9.93)	29 (8.97)
Evening	106 (53.80)	203 (61.32)	183 (62.67)	227 (70.27)
Night	16 (8.12)	14 (4.22)	17 (5.82)	12 (3.71)
Pooled	197	331	292	323
$\chi^2 = 21.524, p = 0.01$				
<i>Figures in parenthesis indicate percentage.</i> <i>* indicates significant difference at 5% level of significance.</i>				

Table 5.
Distribution of victims according to time of exposure with zones.

Time of reporting	Seasons with zones			
	East	West	North	South
Morning	72 (36.54)	98 (29.60)	85 (29.10)	83 (25.69)
Day	28 (14.21)	54 (16.31)	44 (15.06)	46 (14.24)
Evening	84 (42.63)	165 (49.84)	153 (52.39)	179 (55.41)
Night	13 (6.59)	14 (4.22)	10 (3.42)	15 (4.64)
Pooled	197	331	292	323
$\chi^2 = 12.34, p = 0.194$				
<i>Figures in parenthesis indicate percentage.</i> <i>* indicates significant difference at 5% level of significance.</i>				

Table 6.
Distribution of victims according to time of reporting with zones.

Site of bite	Zones			
	East	West	North	South
Face	2 (1.01)	7 (2.11)	3 (1.02)	7 (2.16)
Hands, arms, & shoulders	26 (13.19)	75 (22.65)	65 (22.26)	70 (21.67)
Legs	125 (63.45)	173 (52.26)	159 (54.45)	190 (58.82)
Knees, thighs	26 (13.19)	31 (9.36)	25 (8.56)	22 (6.81)
Buttocks	14 (7.10)	36 (10.87)	33 (11.30)	30 (9.28)
Abdomen & back	4 (2.03)	9 (2.71)	7 (2.39)	4 (1.23)
Pooled	197	331	292	323
$\chi^2 = 21.899, p = 0.11$				
<i>Figures in parenthesis indicate percentage.</i> <i>* indicates significant difference at 5% level of significance.</i>				

Table 7.
Distribution of victims according to site of bite with zones.

remaining 6.59% belonged to 60 and above. The same pattern with age was seen among the other zones. Statistically, there is a non significant difference concerning age for different zones. The **Table 4** shows the date of reporting according to

different zones. In east zone, the majority, 67.51% had reported on the same day, while 25.88% had reported after a day or more, and the rest 6.59% after a week. The same pattern was observed among the other zones. Statistically, there is a non-significant difference concerning date of reporting for different zones. The **Table 5** depicted the distribution of victims according to time of exposure for different

Category of bite	Zones			
	East	West	North	South
1	0(0.00)	0(0.00)	0(0.00)	0(0.00)
2	47(23.85)	114(34.44)	92(31.50)	88(27.24)
3	150(76.14)	217(65.55)	200(68.49)	235(72.75)
Pooled	197	331	292	323

Fisher exact test = 0.04*

*Figures in parenthesis indicate percentage.
 indicates significant difference at 5% level of significance.

Table 8.
 Distribution of victims according to category of bite with zones.

Immunoglobulin	Zones			
	East	West	North	South
Received	153 (77.66)	266 (80.36)	246 (84.24)	282 (87.30)
Didn't receive	44 (22.33)	65 (19.63)	46 (15.75)	41 (12.69)
Pooled	197	331	292	323

$\chi^2 = 10.085, p = 0.017$

*Figures in parenthesis indicate percentage.
 indicates significant difference at 5% level of significance.

Table 9.
 Distribution of victims according to receiving Immunoglobulin with zones.

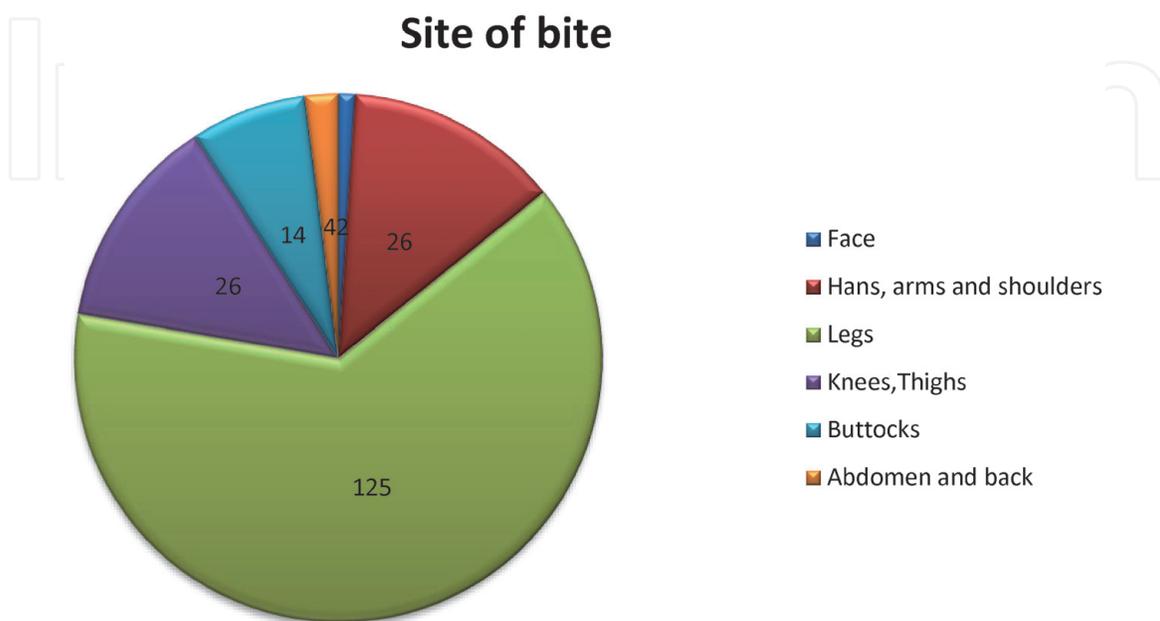


Figure 2.
 Site of bite.

zones. In east zone 53.80% were bitten by dog in the evening, 29.44% in the morning, 8.62% during day time and 8.12% at night. The same pattern again was seen with the respective zones. Statistically, there is a non significant difference concerning time of exposure for different zones. The **Table 6** depicted victims according to the time of reporting for different zones. In east zone, 42.63% had reported at evening, 36.54% in the morning, 14.21% during day time and 6.59% at night. The **Table 7** depicted victims according to the site of the bite for diverse zones. In east zone, 63.45% had bites on legs, 13.19% had bites on hands, arms and shoulders, 7.01% had bites on buttocks, 13.19% had bites on knees and thighs, 1.01% had bites on the face, and 2.03% had bites on abdomen and back. Likewise the other zones showed a similar trend. Statistically, there is a non-significant difference concerning site of bite for different zones (**Figure 2**). The **Table 8** depicted victims according to the category of bite for diverse zones. In east zone, 76.14% had category 3 bites, while 23.85% had category 2 bite. Similar pattern with the other zones was seen. The **Table 9** depicted victims according to receiving immunoglobulin for different zones. In east zone, 87.30% had received immunoglobulin while 12.69% did not receive. Statistically, there is a non-significant difference about receiving immunoglobulin for different zones.

4. Discussion

Rabies is an illustration of the most imperative disease that assaults humans. Its notoriety is unusual when assessed its impact on the human society. Dog bites are considered as a wellbeing perplexity as it jeopardizes human life due to rabies. In my study, irrespective of different zones of Srinagar, males were bitten more than females, this is apparently in light of the fact that males stir out of their dwelling more, allotting the diseases nature as occupational. Moreover, 30–40 year old individuals are the typical hit as this could be due to work related exposure, accompanied by 1–30 age groups and with that of WHO where the disease is recognized as of juveniles. This verdict is in conformity with the findings of Mohammadzadeh et al. [5] and Agarvval and Reddaiah [6]. Due to fear from dogs, the majority people had reported to the same day at hospital. The highest number of cases was seen at evening because people usually come from offices/Schools. The reporting time to the hospital was evening as people's perception regarding the disease. Whenever anyone is bitten in the area the people gather there and recommend them to go to the hospital. The site about the bite is markedly imperative, as the rabies virus has a tissue tropism. The majority of the bite were seen on legs. This result is analogous to Ain et al. [4], Acharya et al. [7] and Chopra et al. [8], Agarvval and Reddaiah [6]. When the dog threatens the victim, bites of lower extremities are seen. This is the verity where the dog threatened the victim, the victim moves apart inducting contact and because the lower extremities is the closest part of the body to the dog. Victims who threatened the dog are more prone to bite on upper extremities. Although only some of the bites were seen on the face and head, we observed that children aged below 10 were radically extra prone to be bitten on the head in disparity to older ages. Typically children display offensive acts towards the dogs, and the head of the child is closer to the mouth of the dog. The majority of the bites were category 3. When dog's assault people its teeth penetrate into the deeper tissues causing deeper wound. The people were receiving immunoglobulins. This could be due to improved communication and information, each time any individual is bitten by a dog the citizens assemble there and recommend them to visit the SMHS hospital. The West zone has witnessed the peak number of cases. This might be because the area is crowded plus humans and dogs have recurrent contact. One

more possible reason might be due to open garbage dumps that boosts the risk factor for rabies transmission. This is the downtown area where streets are densely inhabited each time. Here, people regularly throw food on the streets. The simple accessibility of food in the garbage not merely augments fertility in dogs, but foraging makes dogs extra prone to attack public.

5. Conclusion

Open garbage dumps are a public health impediment and they instigate to stray dogs propagation in Srinagar. Individual's information should be enhanced and their sanguine attitude might be translated into pertinent practices for preclusion of rabies.

Abbreviation

SMHS Shri Maharaja Hari Singh Hospital

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